Soil degradation

Causes (general)

Decline in quantity and quality of soil including:

- Erosion by wind / water.
- Biological degradation (loss of humus and plant / animal life)
- Physical degradation (loss of structure, changes in permeability).
- Chemical degradation (acidification, salinization, changes in pH).

Causes of degradation (general):

- Reduction in vegetation cover
- Unsustainable land-use practices
- Groundwater abstraction (physical degradation – drying).
- Atmospheric deposition – e.g. heavy metals.

Importance of climate change on above.

Case study: Loess Plateau

1. BACKGROUND
2. CAUSES / EFFECTS
3. MANAGEMENT

LOESS NOTES

BACKGROUND:

- Farmed for 10,000
- Natural ecosystem = woodland / grassland.
- Geographically diverse
- Topography = gullies, valleys, gorges. Steep slopes.
- Rainfall between 250 – 900mm/yr, mostly in summer.
- Large temperature range.

Key causes of Loess degradation

- Deforestation
- Unsustainable agriculture – intensive use of land.
- Physical geography – steep slopes and extreme climate.
- Overgrazing of goats / sheep – unrestricted.
- Farming on slopes without terracing.
- Heavy rainfall in summer.

Management strategies:

- Participatory project funded by World Bank. Integration of economic and environmental needs.
- Long-term land leases given to farmers – invest in land economically and socially.
- Restrictions on grazing.
- Banning of agriculture in worst-hit areas.
- No free grazing of animals.
- Building of terraces for arable farming.
- Re-forestation of areas to provide vegetation cover.
- 'Fish scale pits' on hillsides to encourage water infiltration and less surface run-off.
- Project considered highly successful – output increased, environmental impact decreased. Economically viable.